Abstract

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Immunohistochemical analysis of SMAD protein expression in experimental atherogenesis

Diploma thesis

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Background:

The aim of this diploma thesis was to analyze SMAD 2/3 expression in mice atherosclerosis lesions and find differences in the expression between animals feeding with standard diet and diet with addition of atorvastatin. The aim was demonstrate whether atorvastatin influences SMAD 2/3 expression without hypolipidemic effects.

Methods:

Female C57BL/6J apolipoprotein E and LDL-receptor double deficient mice were used in the study. Biochemical analysis of blood samples, histological and immunohistochemical analysis of aorta were performed. For identification of SMAD 2/3 expression was used EnVision method with DAB visualization.

Results:

Biochemical analysis revealed that the eight-week administration of atorvastatin resulted in a statistically significant increase in total cholesterol. Histological analysis showed that administration of atorvastatin resulted in significant reductions in the size of atherosclerotic plaques compared with untreated group.Immunohistochemical analysis showed SMAD 2/3 expression in atherosclerotic plaques in both groups.Significant differences in the expression of SMAD 2/3 was not found between these two groups within the meaning of intensity and location of staining.

Conclusion:

These results indicate that expression of SMAD 2/3 is related to hypolipidemic effect of atorvastatin. But it also does not exclude a possible positive effect of SMAD 2/3 in the process of atherogenesis.